

Title (en)

Method of optimizing shim coil current selections in magnetic resonance magnets.

Title (de)

Methode zur Optimierung der Wahl des Stroms in den Abgleichspulen von Magneten für die magnetische Resonanz.

Title (fr)

Méthode pour l'optimisation de la sélection du courant dans les bobines d'ajustage des aimants de résonance magnétique.

Publication

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Application

EP 90313035 A 19901130

Priority

US 44550889 A 19891204

Abstract (en)

A method of shimming a magnet having correction (shim) coils (3) is provided. The field strength in the bore of the magnet is measured at a predetermined number of points (13). The field inhomogeneity is determined from the measured field strengths. The field created by a fixed current in each shim coil operating alone, at each of the predetermined points, is determined. The shim correction coil currents are determined using a linear programming solver to minimize the field inhomogeneity and the correction coil currents. The correction coil currents are determined based on the measured field in the bore of the magnet and the field created by each of the shim coils when carrying a fixed current, with the correction coil currents each constrained to a maximum value which is adjusted for the current in the correction coils when the field strength was measured. The correction coils are adjusted to the determined values and the field strength of the magnet is again measured at the predetermined points. The inhomogeneity is again determined and compared to a desired value of inhomogeneity. If the inhomogeneity is greater than desired, then shim correction coil currents are again determined, the determined shim coil currents set, and the field measured until the desired inhomogeneity is achieved.

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G01R 33/40

IPC 8 full level

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CPC (source: EP US)

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